



August 25, 2016

Meagan E. Ormand Golder Associates Inc. 2108 W. Laburnum Ave. Suite 200 Richmond, VA 23227

RE: Project: Process Split

Pace Project No.: 92310039

# Dear Meagan Ormand:

Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

This revision was issued on 8/25/16 to report results for the correct analyte.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Micolo Yayarowske

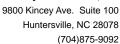
nicole.gasiorowski@pacelabs.com

**Project Manager** 

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc. Martha Smith, Golder Associates Inc. Mike Williams, Golder Associates Inc







### **CERTIFICATIONS**

Project: Process Split
Pace Project No.: 92310039

**Ormond Beach Certification IDs** 

8 East Tower Circle, Ormond Beach, FL 32174

Alabama Certification #: 41320 Connecticut Certification #: PH-0216

Delaware Certification: FL NELAC Reciprocity

Florida Certification #: E83079 Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007

Maryland Certification: #346 Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165 Wyoming Certification: FL NELAC Reciprocity

West Virginia Certification #: 9962C Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity



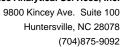
Pace Analytical www.pacelabs.com

9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

## **SAMPLE SUMMARY**

Project: Process Split
Pace Project No.: 92310039

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
92310039001	T2-160824-1400-S1	Water	08/24/16 14:00	08/24/16 14:35	





## **SAMPLE ANALYTE COUNT**

Project: Process Split
Pace Project No.: 92310039

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
92310039001	T2-160824-1400-S1	EPA 200.8	CKJ	1	PASI-O	_





9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

## **PROJECT NARRATIVE**

Project: Process Split
Pace Project No.: 92310039

**Date:** August 25, 2016

This report has been revised.



9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

### **PROJECT NARRATIVE**

Project: Process Split
Pace Project No.: 92310039

Pace Analytica

Method: EPA 200.8

**Description:** 200.8 MET ICPMS **Client:** Golder\_Dominion\_Bremo

**Date:** August 25, 2016

### **General Information:**

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

### **Sample Preparation:**

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### **Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.





### **ANALYTICAL RESULTS**

Project: Process Split
Pace Project No.: 92310039

Date: 08/25/2016 08:58 PM

Sample: T2-160824-1400-S1 Lab ID: 92310039001 Collected: 08/24/16 14:00 Received: 08/24/16 14:35 Matrix: Water

Report

Parameters Results Units Limit MDL DF Prepared Analyzed CAS No. Qual

200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8

Chromium 0.43J ug/L 5.0 0.34 1 08/25/16 11:42 08/25/16 16:01 7440-47-3



Process Split

LABORATORY CONTROL SAMPLE:

Date: 08/25/2016 08:58 PM

Project:

### **QUALITY CONTROL DATA**

Pace Project No.: 92310039 QC Batch: 317140 Analysis Method: EPA 200.8 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Associated Lab Samples: 92310039001 METHOD BLANK: 1684993 Matrix: Water Associated Lab Samples: 92310039001 Blank Reporting Parameter Limit MDL Qualifiers Units Result Analyzed Chromium ND 5.0 0.34 08/25/16 15:45 ug/L

Spike Parameter Units Conc. Result % Rec Limits Qualifiers Chromium ug/L 50 48.8 98 85-115

1684994

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1684995 1684996 MS MSD 92310019001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual ND 70-130 20 Chromium ug/L 50 50 48.0 48.4 95 96

LCS

LCS

% Rec

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



### **QUALIFIERS**

Project: Process Split
Pace Project No.: 92310039

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

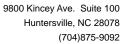
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## **LABORATORIES**

Date: 08/25/2016 08:58 PM

PASI-O Pace Analytical Services - Ormond Beach





## **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Process Split
Pace Project No.: 92310039

Date: 08/25/2016 08:58 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92310039001	T2-160824-1400-S1	EPA 200.8	317140	EPA 200.8	317177



# Document Name:

# Sample Condition Upon Receipt(SCUR)

Document No.: F-MEC-CS-009-Rev.03 Document Revised: May 24, 2016

Page 1 of 2

Issuing Authority:
Pace Mechanicsville Quality Office

Page 2 of 2 for Internal Line ONL

Sample Condition Upon Client Name:	dev/Rv	0 W/ D			Project #	#: WO:	#:92			iai use ONLY
Courier: Fed Ex	UPS UPS	USPS		Т	Client					
☐ Commercial ☐ Pace		Other:_				92310	039			
Custody Seal Present? Yes	No Seals Inta	ct? [	Yes		No				ρ-	21-11-
Packing Material: Bubble Wrap	Bubble	Bags [	None		Other:_	Date/Ini	tials Person E	xamining Con	itents: ()	250 250
Thermometer: ☑ RMD001 □	_	-	D/	Wet [	Blue	None	Sample	s on ice, cool	ן ing process	has begun
Correction Factor: 0.0°C Cooler Temp Co		Type of Ice:	_		Riol	ogical Tissue	Frozen?	□Yes	Пио	□n/a
Temp should be above freezing to 6°C					2101	ogical Hissai	. ITOLEII.			
USDA Regulated Soil ( N/A, water sample)					1000 C-11					
Did samples originate in a quarantine zone withi	n the United Stat	es: CA, NY,	or SC (c	heck m		d samples orig cluding Hawai			e (internati □No	onally,
~							ments/Discr			
Chain of Custody Present?	<b>☑</b>	],Yes 🔲	No 🗆	N/A	1.		-			
Samples Arrived within Hold Time?	<b>□</b>	/ ]Yes 🔲	No 🗌	N/A	2.					
Short Hold Time Analysis (<72 hr.)?		Yes 🔽	No 🗆	N/A	3.					
Rush Turn Around Time Requested?	Z	Yes 🔲			4.					
Sufficient Volume?	V	Yes 🔲			5.				*1	
Correct Containers Used?	V	Yes 🔲			6.					
-Pace Containers Used?	₩.	/ Yes □r		N/A						
Containers Intact?		Yes 🔲	375-246		7.				-	
Samples Field Filtered?	V	Yes 🔲				sediment is v	isible in the o	dissolved cor	ntainer	
Sample Labels Match COC?		Yes 🔲			9.		34			
-Includes Date/Time/ID/Analysis Matrix:	MM									
All containers needing acid/base preservation has checked?		Yes 🗆		1	10. <sub>HNC3 pH&lt;2</sub>					
All containers needing preservation are found to I	be in	Yes 🔲 N	ю Ці	N/A	H□ pH<2					
compliance with EPA recommendation?		_			H2SO4 pH<2					
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH >9 Sulfide, NaOH>12 <b>Exceptions</b> : VOA, Coliform, TOC, Oil and Grease,	Cyanide) 🚺	Yes 🔲 N	lo 🔲 l	N/A	NaOH pH>12					
DRO/8015 (water) DOC,LLHg		Yes 🔲 N	· 🗐	N/A	NaOH/ZnOAc ph	ł>9				
Samples checked for dechlorination?		Yes 🗆 N	· 🗹	N/A 1	11.					
Headspace in VOA Vials (>5-6mm)?		Yes 🔲 N	· 🔽	N/A 1	12.					
Trip Blank Present?		Yes 🔲 N	o 🗖	N/A 1	13.					
Trip Blank Custody Seals Present?		Yes 🔲 N	o 🗖	N/A	*					
Pace Trip Blank Lot # (if purchased):			-							
CLIENT NOTIFICATION/RESOLUT	TION						Field Dat	a Required?	Yes	No
Person Contacted:					Date/Tir	me:				
Comments/Sample						-				
Discrepancy:										
					·					
Project Manager SCURF Review:		Nn	16			Date:	8/2	25/16		
Project Manager SRF Review:		Alma	/_		numerkin newi	Date	61-	20/11		
Note: Whenever there is a discrepancy affecting No	orth Carolina comp	liance sam	ples, a co	opy of th	his form will b	Date: be sent to the	North Carolin	a DEHNR Cer	tification C	Office (i.e.
Out of hold, incorrect preservative, out of temp, inc	orrect containers)			60.50						,

### Section A Required Client information: Company: Golder Asso Requested Due Date/TAT: Address: All analyses to be performed under Golder-Pace MSA dated ITEM # 6 804-551-0129 Required Client Information Section D (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE 2108 W Laburnum Ave, Ste 200 Golder Associates Mormand@golder.com Richmond, VA 23227 T2-160824-1400-51 SAMPLE ID ADDITIONAL COMMENTS 24 HOUR Fax: 804-358-2900 Valid Matrix Codes MATRIX CODE DRAWNOS WATER WANTER WANTER WANTE WATER WANTE WATER ONLESCUD TISSUE TISSUE VARIA OTT TISSUE VARIA VARIA OTT TISSUE VARIA VARIA Copy To: Martha\_Smith@golder.com Project Number: 1520-347.200 Report To: Mormand@golder.com Purchase Order No.: Required Project Information: F 3 Ron\_Difrancesco@golder.com RELINQUISHED BY / AFFILIATION MATRIX CODE (see valid codes to left) Breme Monthly Process Ð (G=GRAB C=COMP) DATE 1 COMPOSITE SAMPLER NAME AND SIGNATURE TIME COLLECTED PRINT Name of SAMPLER: di/ 3/24/16 SIGNATURE of SAMPLER: DATE COMPOSITE END/GRAB U.S. TIME 7 DATE SAMPLE TEMP AT COLLECTION Pace Quote Reference: Pace Project Manager: Pace Profile #: Address: Section C Company Name: Golder Associates Invoice Information: # OF CONTAINERS 1435 0 TIME Unpreserved thing mun H<sub>2</sub>SO<sub>4</sub> Preservatives Meagan Ormand HNO<sub>3</sub> HCI NaOH Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> Methanol Other N IN Analysis Test 200.7 - Al, Ba, Be, B, Co 200.7 - Fe, Mo, V

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days

F-ALL-Q-020rev.08, 12-Oct-2007

# CHAIN-OF-CUSTOD\ / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.